

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Rib Fall Accident
March 16, 2015

Deep Mine 41

Paramont Coal Company Virginia, LLC
McClure, Dickenson County, Virginia
ID No. 44-07223

Lead Accident Investigator

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OVERVIEW

At approximately 5:00 a.m. on Monday, March 16, 2015, Section Foreman/Mine Examiner, David William Brummitte (Victim) was fatally injured while conducting a pre-shift examination. The victim was last seen performing the preshift examination duties on the 003-0 Mechanized Mining Unit (MMU) before being found trapped between fallen rib material and the frame of a shuttle car.

The accident occurred because the mine operator failed to support and/or control the mine ribs where miners are required to work or travel.



GENERAL INFORMATION

Paramont Coal Company Virginia, LLC, Deep Mine 41 is an underground coal mine located two miles south of Freemont, Dickenson County, Virginia. Paramont Coal Company Virginia, LLC, is a subsidiary of Alpha Natural Resources Inc., with the address of record in Bristol, Virginia. The principal officers for the mine at the time of the accident were:

Michael W. Clark	President / General Manager
Jaime K. Ratliff	Superintendent
Jeffery A. Cantrell	General Mine Foreman
David Dillon	Safety Representative

The mine has one split shaft opening and one slope opening into the Jawbone coal seam. The seam averages 6 feet in height. One mine fan exhausting 570,000 cubic feet of air per minute provides ventilation. The mine liberates 3.1 million cubic feet of methane per day. The development units are ventilated using a split system with exhausting line curtains.

The mine employs 229 underground and 26 surface personnel working three shifts per day, two production shifts and a maintenance shift, five days per week. The owl (midnight) shift is designated as a maintenance shift. The mine produces an average of 13,000 tons of raw material daily from five MMUs using continuous mining machines. Coal is transported from the faces by electrical powered shuttle cars. The coal is then transported to the surface by belt conveyor haulage. Employees and materials are transported in and out of the mine via the slope entrance and underground travel is facilitated by diesel-powered equipment.

A regular safety and health inspection was started on January 5, 2015, and was ongoing at the time of the accident. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine in 2014 was 2.96, compared to a National NFDL rate of 3.30 for mines of this type.

DESCRIPTION OF ACCIDENT

On March 15, 2015, Brummitte, Section Foreman, entered the mine at 7:35 p.m. and traveled to the 003-0 MMU, which was in the 2D panel, to conduct a preshift examination in preparation for the oncoming owl shift. After completing the examination, Brummitte traveled back to the surface to meet the miners assigned to him and make additional preparations to travel back to the 003-0 MMU. During the owl shift on March 16, 2015, regularly scheduled, non-production, maintenance activities were being conducted on the MMUs and outby areas of the mine. Miners working on the 003-0 MMU were making a belt and power move as part of ongoing retreat mining.

The owl shift miners arrived on the 003-0 MMU at approximately 11:30 p.m., March 15, 2015, and began work to move the belt and power outby one crosscut length in preparation for the oncoming production crew to conduct retreat mining. The first half of the shift was normal and the majority of the power and belt move activity was completed. The miners, including Brummitte, gathered in the travelway near the section dump point to break for lunch at approximately 3:00 a.m. Brummitte and the miners returned to work at approximately 4:00 a.m.

to complete the remaining tasks needed for the belt and power move and to set up the section equipment. Justin Stewart and Jeremy Salyers, Roof Bolting Machine Operators, were preparing to install spot location roof bolts and straps as needed. Brummitte began to conduct the preshift examination for the oncoming shift as the other miners resumed their duties.

The date, time and initial certifications on the working section indicate that Brummitte examined the section power center at 4:08 a.m. Date, time and initials by Brummitte were also present in the No. 1 through No. 4 faces. Brummitte examined the face of No. 1 at 4:24 a.m., No. 2 at 4:27 a.m., No. 3 at 4:32 a.m. and the No. 4 face at 4:35 a.m. Dates, times and initials were not found in the No. 5 through No. 7 faces.

The sequence of time indicates Brummitte traveled through the last open crosscut to the No. 4 entry when traveling from the No. 3 to No. 4 face. Jerry Kelly, Scoop Operator, stated Brummitte flagged him down in the No. 5 entry outby the last open crosscut and borrowed the slate bar which is normally maintained on the scoop Kelly was operating. The emergency response plan (ERP) tracking system records show Brummitte and Kelly were together in an area of the No. 7 entry at 4:51 a.m.

The tracking system shows Brummitte returned to the No. 4 entry at 5:00 a.m. The tracking records indicate Brummitte remained in this general area until Stewart found him trapped by the rib fall. It has been determined the accident occurred at approximately 5:00 a.m.

Stewart was walking in the No. 4 entry toward the shuttle car with the intention of moving the shuttle car outby, toward the dump point, to clear a trailing cable overlap. Stewart stated that as he approached the shuttle car, he saw Brummitte's hard hat and light on the mine floor near the rear of the shuttle car and immediately knew there was a problem. Based on interviews and a review of the employee tracking records, Stewart arrived at Brummitte's location at approximately 5:10 a.m.

Stewart immediately summoned help from Kelly and Mike Shelton, Outby Foreman, who were in the area. Kelly and Shelton had been working with Stewart to move the continuous mining machine and were approximately one crosscut from the accident scene. Daniel Bowen and Mike Shell, Outby Laborers, were working on the section conveyor belt tailpiece approximately two crosscuts outby the accident scene. They ran to the accident scene to assist once they were informed of the accident. The miners attempted to free Brummitte using their hands and two slate bars to lift the fallen rib material, but were unsuccessful. Brummitte was trapped in a semi-upright position between the shuttle car and the fallen rib, facing toward the No. 3 entry. Shelton ran to the dump point, then trammed a Mini-Trac fork lift to the accident site and used it to lift the rib fall, allowing the other miners to pull Brummitte free and begin first aid.

As Brummitte was freed from the rib fall, Donald Cook, Maintenance Foreman, arrived at the accident site and Cook and Bowen immediately began Cardio Pulmonary Resuscitation (CPR). Stewart traveled to the power center and retrieved first aid supplies. Billy Mullins, Scoop Operator, transported the supplies to the accident site. Stewart retrieved an Automatic External Defibrillator (AED) from the power center, which was administered immediately. Shell radioed outside and informed Shane Meade, Section Foreman, of the accident and the need for

emergency rescue assistance. Kenneth Webb, Assistant Shift Foreman, overheard the conversation and alerted surface personnel to also initiate Med-Flight. Webb was on the 001-0 MMU when he was informed of the accident. He immediately traveled by mantrip to the 003-0 MMU to assist.

Cook and Bowen, who administered first aid to Brummitte, indicated that no pulse or breathing was detected during the treatment. They also indicated that the AED only gave a command to shock one time. The shock did not produce a detectable pulse. Cook, Bowen, Shell and Shelton worked briefly to prepare Brummitte for transport to the surface. Brummitte was stabilized on a back board and transported via mantrip to the surface of the mine. Webb, Shell, Shelton, Bowen and Mike Gamble, Maintenance Foreman, traveled with Brummitte to the surface. Shelton operated the mantrip as the other miners administered CPR with AED monitoring during the trip to the surface. They arrived on the surface at approximately 5:39 a.m. and continued resuscitation efforts until Brummitte was transferred to the Med-Flight personnel.

Med-Flight personnel, along with Brummitte, boarded a ground unit rescue vehicle operated by Clintwood Volunteer Rescue Squad, Inc. The victim was transported to Dickenson County Community Hospital, Clintwood, Virginia, and arrived at 6:36 a.m. He was pronounced dead by Dr. Craig Graul, Emergency Room Physician, at 6:47 a.m., on March 16, 2015.

INVESTIGATION OF THE ACCIDENT

On March 16, 2015, at 5:11 a.m., Lacy Stanley, General Outside Laborer with Bates Contracting and Construction, called the MSHA Call Center to report the accident. Stanley stated a miner was injured and trapped, and the time of occurrence was 5:00 a.m. Personnel from the MSHA call center contacted Jason Lane, Supervisory Electrical Engineer, at 5:23 a.m.

Lane contacted the mine by telephone at 5:36 a.m., and issued a verbal 103(j) order with an affected area of the 003-0 MMU. Kenneth L. Garrett, Mine Safety and Health Inspector, was contacted at home by Michael B. Colley, Supervisory Mine Safety and Health Inspector, who informed him of the accident and instructed Garrett to travel to the mine. Garrett arrived at the mine at 7:07 a.m. Garrett met Roger Day, Mine Safety and Health Inspector (Diesel Specialist), who had arrived at the mine to conduct diesel equipment inspections. Day informed Garrett that the 103(j) order had been verbally modified to a 103(k) order at 5:52 a.m. Garrett joined Virginia Department of Mines, Minerals and Energy (DMME) representatives Chris Whitt, Emergency Manager; and Hershiel Hayden and Glendon Sturgill, Mine Inspectors, on the surface of the mine to conduct brief preliminary interviews with witnesses. Day entered the mine with Sammy Fleming, DMME Supervisory Mine Inspector; William Stevens, DMME Mine Inspector; and Jeffery Cantrell, General Mine Foreman, Deep Mine 41; and traveled to the 003-0 MMU to secure the accident scene.

An investigation team, traveled to the mine, including Jason D. Hess, Mine Safety and Health Specialist (Ventilation/Lead Accident Investigator); Paul E. Smith, Supervisory Mine Safety and Health Inspector; Garnie M. Deel, Mine Safety and Health Specialist (Roof Control); and Duane Beggs, MSHA Mining Engineer.

Preliminary interview statements were gathered from the miners who had worked or traveled on the 003-0 MMU during the owl shift and those who took part in the rescue and recovery efforts. The MSHA investigation team joined Hayden; Sturgill; and Kenneth Johnson, DMME Mine Inspector, along with David Dillon; Jerome Dean; and Joseph E. Rudder Jr., Paramount Coal Deep Mine 41 Representatives, and traveled underground to the 003-0 MMU accident scene.

Investigators took photographs at the accident scene and made measurements of the fallen rib material and location of mine equipment involved in the accident.

On March 17, 2015, formal interviews were conducted by MSHA and DMME with the witnesses and persons who had information related to the accident. These interviews were conducted at the Dickenson County Center for Education and Research (DCCE&R) in Clintwood, Virginia. Persons interviewed included members of the 003-0 MMU section crew who worked with the victim during the shift of the accident and persons who assisted in the rescue and recovery efforts (See Appendix A).

On March 17, 2015, James Vadnal, MSHA Technical Support Roof Control Division, traveled to the mine to analyze the mine roof and ribs at the accident scene, and other portions of the mine.

On March 18, 2015, additional interviews were conducted at the DCCE&R. These interviews included persons who had worked with Brummitte leading up to the time of the accident. Certified mine examiners who had conducted examinations and managed work forces on the 003-0 MMU section in the days which preceded the date of the accident were also interviewed (See Appendix A).

On March 19, 2015, MSHA personnel returned to the accident scene to observe the moving of the shuttle car and fallen rib material involved in the accident. Additional photos were taken of the accident scene as the shuttle car and rib fall were moved.

DISCUSSION

Accident Site

The accident occurred in the crosscut between the No. 3 and No. 4 entries of the 003-0 MMU retreat mining section. The accident occurred on the inby side of crosscut 14 approximately 90 feet inby Survey Station 4450 and approximately 50 feet to the right of Survey Station 4464 (See Appendix B).

The mining height at the location of the accident was 78 to 90 inches high. The coal/rock rib fall which fell on the victim was lying on the mine floor between the shuttle car and the base of the coal pillar. The fallen material was approximately 90 inches long, 45 inches high and 15 to 18 inches thick. Smaller pieces of coal/rock rib material had also fallen on the mine floor surrounding the large section. These smaller pieces ranged in sizes up to approximately 1 to 2 feet with the thicknesses, up to approximately 1 foot. These pieces appeared to have broken off from the larger section of rib, either during the initial rib failure or during the process of moving the rib to free the victim. A measurement of the cavity in the pillar, which resulted from the

failure of both the large and small pieces, measured approximately 19 feet long. It is unknown if any loose rib material had been scaled from this area prior to the accident.

The entries of this section had been developed on 90 foot crosscuts by 65 foot entry centers, resulting in a coal pillar with approximate dimensions of 45 feet by 70 feet.

Pillar Stability

A pillar stability analysis of the panel where the accident took place was conducted by the Technical Support Roof Control Division, utilizing software developed by the National Institute for Occupational Safety and Health (NIOSH) titled, *Analysis of Retreat Mining Pillar Stability* (ARMPS). The ARMPS software calculates stability factors of pillar systems by dividing the total load-bearing capacity by the total load applied to the active mining zone. Various factors were input into the ARMPS software: 7 foot mining height, 700 foot depth of cover over the seam, and 20 foot entry and crosscut widths. Panel 2D pillars are developed on 65 foot entry by 90 foot crosscut centers. Six pillars were formed by the seven entries. During retreat mining the mine had elected to leave one block on the left side of the section looking inby (See Appendix C). On the right side of the section, a 32 foot slab cut was taken from the 130 foot wide barrier that separated the 2D panel from the previously mined 2C panel. Twenty-one rows of pillar blocks had previously been mined on the section.

All NIOSH recommended ARMPS stability factors for pillar design at this mine were met or exceeded. The ARMPS 6.2.02v6 (2010) design guidelines recommend a minimum stability factor of 1.5 for both the pillars and barriers during development and retreat mining. The ARMPS values for the 2D panel were above the NIOSH recommended minimum Stability Factors. Therefore, overall pillar stability does not appear to have contributed to the rib fall.

The local geology of the 2D Panel of this mine, as well as throughout the majority of this entire mine, has geological fracture features called “drag folds” and “slickensides” that caused the ribs of the pillars to become loose and unstable.

Drag folds are geological features that produce slickensided surfaces. Drag folds occur during the processes of when peat is formed into coal and when the seam is subjected to lateral forces. The soft thinly laminated peat is compressed and applied lateral forces cause slickensided surfaces to be formed. The drag folds on the 2D panel were contained within the coal seam and did not continue into the roof.

Only a small area at the lower right of the coal that fell during the fatal accident was slickensided. However, the slickensides in the vicinity of the accident contributed to the instability in the rib (See Appendix D).

Mine Examinations

Brummitte was conducting a preshift examination of the 003-0 MMU for the oncoming day shift when this accident occurred and had yet to complete the examination or communicate any findings to the surface (See Appendix C). He had conducted the last complete preshift

examination of the 003-0 MMU prior to the beginning of the owl shift during the time frame of 7:40 p.m. to 8:48 p.m., March 15, 2015. During the March 15, 2015 preshift exam, Brummitte reported hazards in all 7 entries of the 003-0 MMU. These hazards included loose ribs in entries No. 2 through No. 7, "dead bolt" (common mining term for a damaged or dislodged roof support bolt) in No. 2 entry, and bad corners in entries No. 4 and No. 6. He recorded corrective actions for all of these conditions with the exception of the dead bolt and two bad corners, which were reported as flagged. This preshift examination was not adequate to identify, report and correct all hazardous conditions and violations as required.

During the accident investigation, twenty other locations were identified between the dump point and three crosscuts inby to the pillar line where the coal ribs were not properly supported or otherwise controlled. It is evident that some or all of these loose rib conditions had existed for an extended period of time because rock dust was present in the separation points and behind many of the loose ribs identified. After interviewing all persons who had information related to the accident, it was determined that the last time rock dust was applied on the 003-0 MMU was before the March 15, 2015, preshift examination.

Bolts had been installed on some of the coal pillar corners of this section and there were pillar corners where coal had broken out from around the 1 to 2 rib bolts resulting in overhanging brows and large portions of unconsolidated coal ribs.

The examination records for the 003-0 MMU, over seven calendar days preceding the March 16, 2015 accident, contain similar hazard findings to those reported by Brummitte during the March 15, 2015 examination. Based on the review of these examination records, 27 separate examinations (preshift and onshift combined) were recorded. All of these 27 examinations, with the exception of one examination recorded March 9, 2015, listed all seven entries examined as having roof and rib hazards, with the majority of the entries listed with loose ribs.

The mine operator had implemented a roof and rib initiative. Examination records show that this initiative was in existence in September 2014 and was being practiced during the seven days before the accident. Based on interviews of the examiners, the roof and rib initiative consisted of a foreman and one or more miners traveling throughout the section with slate bars looking for loose roof and ribs and scaling down any problem areas encountered. This initiative was a reactive approach and was not sufficient to eliminate and/or control loose rib conditions.

Bowen stated that a slate bar was found on the mine floor near Brummitte's feet. Kelly stated Brummitte had borrowed a slate bar, normally kept on Kelly's scoop, less than an hour prior to the discovery of the accident. Several miners stated during interviews that it was common for Brummitte to carry a slate bar with him during examinations to correct loose roof and rib hazards.

Even though it was obvious that the reactive rib control methods on the 2D panel at the time of the fatal accident were ineffective to protect miners from rib fall hazards, the mine operator failed to develop and implement an effective proactive rib control program, policy, and/or procedure at that location on the 2D panel.

Prior Roof Control (Rib) Enforcement Actions

The 2D panel began development on September 5, 2014, and continued until February 2015. Retreat mining began on February 13, 2015. The mine operator was cited 3 times on this 2D Panel for loose unsupported and uncontrolled ribs.

Additionally, and during this same time frame, this operator was cited on 7 other occasions throughout the other parts of the mine for loose, unsupported and uncontrolled mine ribs. In the 2 years which preceded this accident, the operator was cited by MSHA 29 times for failure to properly support and or control the ribs where miners were required to work or travel in this mine.

For example, on February 4, 2015, citation 8213166 was issued on the 004-0 MMU because the mine operator committed a violation of 30 CFR 75.202(a) by not supporting or controlling the ribs in three areas to protect miners from falling hazards. This citation states the following: No rib support was installed along a 60 ft length. The failure to control mine roof and ribs exposes miners to injuries from failure to recognize and/or correct these hazards. The mine operator has been issued 53 citations for this standard and is hereby placed on notice to provide additional efforts to control mine roof and rib deficiencies at the mine and comply with this standard. Elevated enforcement will be evaluated on future issuances of this standard until compliance is achieved.

After retreat mining began, on March 4, 2015, citation 8203303 was issued on the 003-0 MMU because the mine operator committed a violation of 30 CFR 75.202(a) by not supporting or controlling the ribs to protect miners from falling hazards. This citation states in part, "Numerous locations along the pillar line and outby toward the section loading point have experienced weakened ribs from increased pressure on the ribs. Ribs of varying in size and consisting of coal and rock were pulled easily with a slate bar along the section. The hazard exists of the loose rib material falling and striking a miner causing a serious injury."

The mine operator had placed two bolts on either side of the corners of most of the pillars on the 003-0 MMU to stabilize the corner. Prior to the accident however, rib hazards were prevalent and the mine operator stopped regularly and adequately installing rib bolts to provide proper support and control of the ribs in the entries and cross cuts of the 003-0 MMU.

Roof Control Plan

On August 11, 2014, the mine operator proposed a revision to the approved roof control plan. This revision addressed rib control and MSHA approved this revision. It stated that adverse ribs can develop from several factors which include pillaring (retreat mining) and geologic conditions, and that adverse ribs will be taken down or supported. Next, it stated the actions that must be taken when rib support is installed to adequately support the ribs.

After a six-month review, MSHA sent a letter to the mine operator, dated December 12, 2014, stating that the roof and rib control plan was deficient and that it needed to be modified to incorporate all approved supplements and removing all outdated/duplicated plan data.

On January 12, 2015, the mine operator submitted a revised plan to address the deficiency letter. Among other things, this revised plan contained detail regarding rib bolting. The revision specified fiberglass bolts that the mine operator could use when rib bolting, and it also specified the installation procedures for the fiberglass bolts. MSHA approved this revised plan.

The mine operator had initiated the installation of rib bolts as a proactive means to support the mine ribs in some portions of the mine prior to the accident. Therefore, this operator knew that a proactive approach of installing rib bolts for support provided a much safer workplace for the miners than the reactive approach of pulling down the loose ribs as deterioration and loosening occurred.

In the area of the accident on the 003-0 MMU, rib bolts had only been installed sporadically from the section loading point to the face in 2 to 3 spot locations. Also, bolts had been installed in the corners of some of the coal blocks. Though it was obvious that taking down the hazardous ribs was reactive and ineffective to protect miners from rib fall hazards, the mine operator failed to develop and implement an effective proactive rib control program, policy, and/or procedure utilizing the rib support requirements in the approved roof control plan.

Previous Injury from falling rib

On September 10, 2014, a miner was cleaning a section scoop when material from the rib fell onto his left foot and ankle. The resulting injury caused the miner to miss days at work.

Equipment

The shuttle car involved in the accident was remanufactured by Maxim Rebuild Company. The serial number is MR 51-SC82A, and the approval number is 18-A060019-0.

Experience and Training

Brummitte was 34 years old. He began working for Paramount Coal Company Virginia, LLC, on February 11, 2013. He normally worked as Utility Operator. Brummitte's additional duties included working as Section Foreman, conducting mine examinations and directing the work force assigned to him. At the time of the accident, Brummitte was working in the capacity of Section Foreman/Mine Examiner.

Brummitte held certifications in the State of Virginia, which included General Miner Underground, Qualified Gas Detector and First Class Mine Foreman. He was issued his General Miner Underground Certification on November 22, 2004. He was issued the Virginia First Class Mine Foreman Certification on October 28, 2014. Brummitte had 10 years of underground mining experience. He had two years of experience at this mine and 20 weeks conducting the duties of a section foreman/examiner at this mine.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were correctable through reasonable management controls. A root cause was identified that, if eliminated, would have either prevented the accident or mitigated its consequences.

Listed below is the root cause identified during the analysis and the corresponding corrective action implemented to prevent a reoccurrence of the accident:

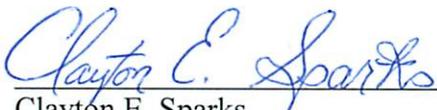
Root Cause: The mine operator failed to support and/or control the mine ribs where miners were required to work and travel on the 003-0 MMU. Even though it was obvious that the reactive rib control methods on the 2D panel at the time of the fatal accident were ineffective to protect miners from rib fall hazards, the mine operator failed to develop and implement an effective proactive rib control program, policy, and/or procedure. Because of this, the mine operator failed to support and/or control the deteriorating rib conditions to prevent the reoccurrence of rib hazards.

Corrective Action: The mine operator revised the approved Roof Control Plan for this mine to include a mandatory rib bolting pattern to support the mine ribs to ensure the miners working in the underground portions of this mine are not exposed to the hazards of loose mine ribs. The operator implemented the provisions of this plan revision by installing rib support bolts in all mine ribs on the active 003-0 MMU prior to resuming production. Because of this, the ribs were effectively controlled while retreat mining was completed on the 2D panel. All miners were trained in the provisions of the revised roof control plan.

CONCLUSION

The victim was fatally injured as a result of the mine operator's failure to support and/or control the mine ribs where the miners were required to work and travel on the 003-0 MMU. Even though it was obvious that the reactive rib control methods on the 2D panel at the time of the fatal accident were ineffective to protect miners from rib fall hazards, the mine operator failed to develop and implement an effective proactive rib control program, policy, and/or procedure at that location on the 2D panel.

Approved:



Clayton E. Sparks
District Manager



Date

ENFORCEMENT ACTIONS

1. A Section 103(j) Order No. 8213532 was issued March 16, 2015, to Paramount Coal Company Virginia LLC, DEEP MINE 41: An accident occurred at this operation on 3/16/2015 at approximately 0455. This order is being issued, under Section 103(j) of the Federal Mine Safety and Health Act of 1977, to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity on the 003 MMU until MSHA has determined that it is safe to resume normal mining operations in this area. This order was initially issued orally to the mine operator at 0536 on March 16, 2015 by telephone.

The Section 103(j) order was modified to a Section 103(k) order upon arrival of MSHA personnel at the mine.

2. A 104(d)(1) Citation, No. 9091155, was issued for a violation of 30 CFR § 75.202(a). On March 16, 2015, the coal ribs were not being supported or otherwise controlled where miners were required to work and travel on the active 003-0 MMU retreat mining section of this mine. On March 16, 2015, a fatal accident occurred on this section when a large coal/rock rib measuring approximately 90" long by 45" high and 15 to 18" thick (approximately 1.4 tons) fell onto a miner working on this section and pinned him against the side of a shuttle car.

Twenty other locations existed between the dump point and three crosscuts inby to the pillar line where the coal ribs were not properly supported or otherwise controlled. These ribs had large loose unconsolidated sections of material hanging from the pillars alongside the entries and travelways where miners worked and traveled. These loose ribs were easily identifiable by their distinct fracture joints and visible separation points. These loose rib areas measured up to 22' long, up to 7.5' high, and in most areas the thickness could be measured to be on average 4" to 5" with some measuring up to 10" thick. It is evident that some or all of these loose rib conditions had existed for an extended period of time because rock dust was present in the separation points and behind many of the loose ribs identified. Rib bolts had only been installed sporadically from the section loading point to the face in 2 to 3 spot locations. Bolts had been installed on some of the coal pillar corners of this section and there were pillar corners where coal had broken out from around the 1 to 2 rib bolts resulting in overhanging brows and large portions of unconsolidated coal ribs. Survey Station 4467 (#5 Entry) is a reference point for the last open crosscut of the 003-0 MMU on March 16, 2015.

Furthermore, the mine operator did not follow the provisions of the approved roof control plan. Although the plan provided for taking down loose ribs as a means of controlling the ribs, it was obvious that taking down rib hazards was reactive and ineffective and the mine operator did not adequately install rib bolts in this area of the mine to effectively control the ribs as provided for in the roof control plan. The mine operator was aware that this rib bolting would effectively control the ribs because he had adequately installed rib bolts in other areas of the mine which resulted in the ribs being effectively controlled

in those areas. The failure to adequately control the ribs is also a violation of 30 CFR § 75.220(a)(1).

This operator has engaged in aggravated conduct constituting more than ordinary negligence. These conditions were very extensive, extremely obvious and had existed for an extended period of time. This is an unwarrantable failure of this mine operator to comply with a mandatory standard.

3. A 104(d)(1) Order, No. 9091156, was issued for a violation of 30 CFR § 75.360(a)(1). The preshift examination of the active 003-0 MMU conducted by this operator on March 15, 2015, was not adequate to identify, report and correct hazardous conditions and violations as required.

On March 16, 2015, a fatal accident occurred on this section when a large coal/rock rib measuring approximately 90" long by 45" high and 15 to 18" thick (approximately 1.4 tons) fell onto a miner working on this section and pinned him against the side of a shuttle car.

Twenty other locations existed between the dump point and three crosscuts inby to the pillar line where the coal ribs were not properly supported or otherwise controlled. It is evident that some or all of these loose rib conditions had existed for an extended period of time because rock dust was present in the separation points and behind many of the loose ribs identified.

Rib bolts had only been installed sporadically from the section loading point to the face in 2 to 3 spot locations. Bolts had been installed on some of the coal pillar corners of this section and there were pillar corners where coal had broken out from around the 1 to 2 rib bolts resulting in overhanging brows and large portions of unconsolidated coal ribs.

The record of the examination maintained for the preshift conducted prior to miners entering the mine on the owl shift March 15, 2015, states that all loose rib conditions were identified, reported and corrected. However, the loose rib conditions identified by MSHA during the March 16, 2015, investigation are evident that not all hazards were identified, reported and corrected and therefore this examination was inadequate.

This operator has engaged in aggravated conduct constituting more than ordinary negligence. These conditions were very extensive, extremely obvious and had existed for an extended period of time. This is an unwarrantable failure of this mine operator to comply with a mandatory standard.

APPENDIX A– Persons Participating in the Investigation

The following people provided information and/or were present during the investigation.

Paramont Coal Company Virginia, LLC

Jaime Ratliff	Superintendent
Jeffery A. Cantrell	General Mine Foreman
Jerome Dean	Assistant Mine Foreman
David Dillon	Safety Representative, Maxim Shared Services, LLC
Joseph E. Rudder Jr.	Director Regulatory Compliance

Virginia Department of Mines, Minerals and Energy (DMME)

Sammy Fleming	Coal Mine Inspector Supervisor
Terry Ratliff	Coal Mine Inspector
Glendon Sturgill	Coal Mine Inspector
Hershiel Hayden	Coal Mine Inspector
Kenneth Johnson	Coal Mine Inspector
Chris Whitt	Emergency Response Coordinator
William Stevens	Coal Mine Inspector
Rusty Ward	Family Liaison

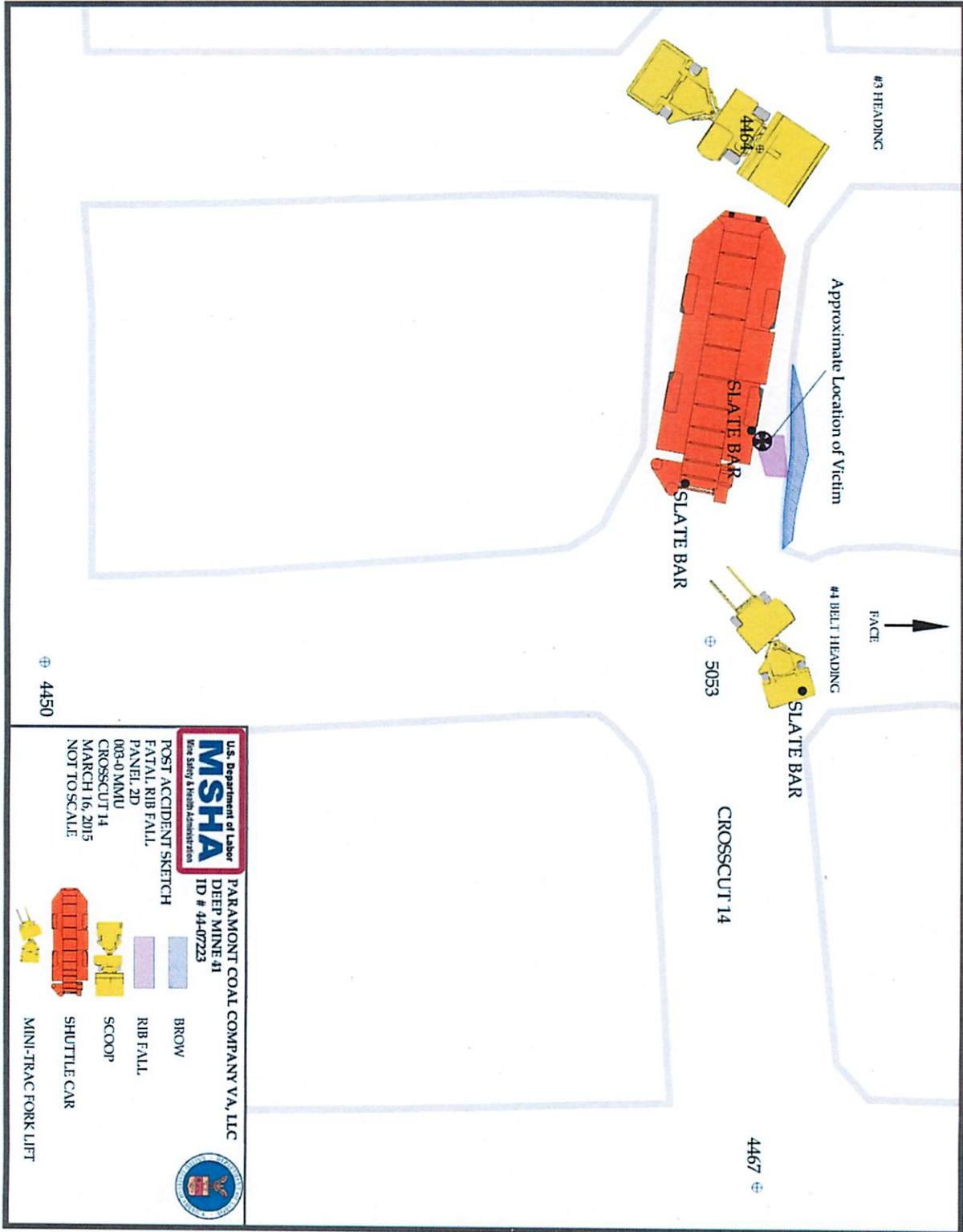
Mine Safety and Health Administration (MSHA)

Clayton E. Sparks	District Manager
Benjamin S. Harding	Assistant District Manager (Technical)
James A. Kiser	Assistant District Manager (Enforcement)
Paul E. Smith	Supervisory Mine Safety and Health Inspector
Gary W. Hall	Supervisory Mine Safety and Health Specialist (Roof Control)
Terry R. Sheffield	Staff Assistant
Jason D. Hess	Mine Safety and Health Specialist (Ventilation)
C. Duane Beggs	Mining Engineer
Fred R. Martin	Educational Field Services
Garnie M. Deel	Mine Safety and Health Specialist (Roof Control)
Jessica R. Reeves	Family Liaison
James Vadnal	MSHA Technical Support Roof Control Division

Persons Interviewed During the Investigation

Justin Stewart	Roof Bolting Machine Operator
Jerry Kelly	Scoop Machine Operator
Donald Cook	Maintenance Foreman
Glen Sturgill	CO Monitor System Repairman
Michael Shelton	Outby Foreman
Odell Payne	Maintenance/Repairman
Daniel Bowen	Conveyor Belt Repairman/Outby labor
Billy Mullins	Scoop Machine Operator
Mike Shell	Conveyor Belt Repairman/Outby Labor
Kenneth Webb	Assistant Shift Foreman
Shannon Strouth	003-0 MMU Production Foreman/Examiner
Ronny M. Smith	003-0 MMU Production Foreman/Examiner

APPENDIX B - Post Accident Sketch



APPENDIX D – Slickenside Surfaces in Rib at Accident Site

